Five-Year Forest and Range Resource Program

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FIVE-YEAR FOREST AND RANGE RESOURCE PROGRAM

Submitted to the Legislative Assembly

in accordance with

Section 9 of the Ministry of Forests Act

March 19, 1985

Ministry of Forests

Honourable T.M. Waterland, Minister

British Columbia Cataloguing in Publication Data
British Columbia. Ministry of Forests.
Five-year forest and range resource program. --
1980-1981 ; 1982/87-

Annual.
"Submitted to the Legislative Assembly in accordance with Section 9 of the Ministry of Forests Act."
ISSN 0229-1886 = Five-year forest and range resource program

1. British Columbia. Ministry of Forests - Periodicals. 2. Forest policy - British Columbia - Periodicals. 3. Forest management - British Columbia - Periodicals. 4. Range management - British Columbia - Periodicals. I. British Columbia. Legislative Assembly. II. Title.

SD14.B7B73 354.7110682'338'05
Rev. Jan. 1985

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PART 1: INTRODUCTION

This Report presents the Province's Forest and Range Resource Program, as required under Section 9 of the Ministry of Forests Act. This is the sixth Resource Program presented to the Legislative Assembly and it outlines the government's intentions for the management of B.C.'s forest and range resources for the five year period beginning April 1, 1985 and ending March 31, 1990.

This Report marks the conclusion of a decision-making process which began last year. On September 28, 1984, the Ministry of Forests submitted a report containing alternatives and options for the management of forest and range resources to the Lieutenant Governor in Council, as required by Section 8 of the Ministry of Forests Act. Those alternatives, and the Ministry's recommendations, were presented and discussed within the government. The decisions made are reflected in this Resource Program.

Some significant changes and new initiatives will be implemented during the next few years. In particular, the Canada-B.C. Forest Resource Development Agreement will allow for an expanded level of intensive silviculture, as well as more research and pest management. It is expected that the Agreement will be signed in the near future.

Also, the Ministry will increase road construction to provide access to timber scheduled for harvest in future years. Planting levels in basic silviculture will continue to expand, so that denuded forest lands are restocked promptly. Knapweed control on rangeland will also be addressed.

Planting will be expanded greatly under this Resource Program. In total, seedlings planted in basic and intensive silviculture will be 200 million in 1987-88, an increase of over 50% compared to present levels.

The Ministry of Forests also presented the 1984 Forest and Range Resource Analysis and the Annual Report for 1983-84 to the Lieutenant Governor in Council last fall. In view of the importance of these documents, key relationships are examined briefly in the following section.

RESOURCE ANALYSIS, RESOURCE PROGRAM, ANNUAL REPORT

The 1984 Resource Analysis is an assessment of the condition of provincial forest and range resources, presented against a review of the opportunities for their future use. It is a major source of current information and analysis for government in its important task of developing, revising and refining resource-use policies.

The Resource Program documents the government's course of action, selected from carefully developed alternatives prepared by the Ministry of Forests to realize opportunities revealed by the Resource Analysis. The Ministry implements the Resource Program and strives to achieve specific goals at specific costs on behalf of the government.

The Annual Report records and evaluates the performance of the Ministry in implementing each year of the Resource Program chosen by government.

ORGANIZATION OF THE REPORT

Part 2 of this Report discusses some important forest and range management issues. Part 3 contains the Resource Program which will be undertaken over the next five fiscal years.

PART 2: ISSUES OF IMPORTANCE

In the sections which follow, important issues in forest and range management which will be addressed by the Ministry of Forests are presented and discussed.

ROAD AND BRIDGE CONSTRUCTION

Road and bridge construction is a key component of the Harvesting Program which will require more attention in the next few years, especially the construction of main forest resource development roads.

A wide range of classes of roads are built to provide access to timber available for harvest and for the transport of logs to manufacturing centres. Main roads with permanent bridges are built to provide access to whole watersheds or large areas of timber. Main roads are often used by many licensees and also facilitate mining exploration, recreation and other uses. Smaller branch and spur roads are then built as tributaries to these main roads, to provide access to specific tracts of timber. Typically, these smaller roads are built and used by a single licensee and, once harvesting and reforestation operations are finished, are put in a safe condition or simply abandoned.

At present, roads and bridges are financed in the following three ways:

(i). Ministry budget: A relatively small amount of construction is paid for directly through budgetary funds. Most of the work is to provide access for sales under the SBEP (Small Business Enterprise Program).

(ii). Appraisal allowances: The costs of branch and spur roads to develop specific tracts of timber are recognized in timber appraisal calculations. Some main roads, particularily on coastal TFLs (Tree Farm Licences), are also financed this way.

(iii). Section 88: Credit to stumpage through the provisions of Section 88 of the Forest Act is the primary method of financing main roads.

Over the past few years the construction of main roads through Section 88 has dropped dramatically, as Table 2-A demonstrates.

Table 2-A: Section 88 Expenditure, Roads and Bridges

	Actual Expenditure				Budget:
	1980-81	1981-82	1982-83	1983-84	1984-85
	- - - - - - -(millions of dollars) - - - - - - -				
Roads/Bridges:	51.0	29.0	14.0	14.6	14.2

Market conditions were a factor in the drop in construction. Timber harvest levels declined and, in recognition of the effects of the recession on the forest industry, licensees were permitted to concentrate harvesting operations in timber which already had roads and bridges in place. This minimized the cash flow requirements associated with developing more timber and allowed licensees to harvest already accessible timber. In addition, Ministry expenditure on roads was reduced.

As a short-term measure, this approach was satisfactory. However, there are rate of harvest limits to the amount of timber accessed by road development and difficulties can be expected with a prolonged concentration of harvesting operations.

Harvesting rates have increased significantly, as Table 2-B demonstrates. These increases underscore the need to develop more timber and to distribute operations more effectively.

Table 2-B: B.C. Timber Harvest

	1980-81	1981-82	1982-83	1983-84
	- - - - - - - (millions of m^3)- - - - - - - -			
Harvest:	72.6	62.6	60.9	77.7

Data available indicate that harvest rates appear to be continuing at close to 1983-84 levels.

Road and bridge construction proposals for funding under the SBEP and Section 88 have been analyzed, and some important statistics are summarized in Table 2-C.

Table 2-C: Estimates of Average Costs

	Average Costs	
	($/km)	($/$m^3$)
SBEP:	21,250	0.75
Section 88:	56,300	0.65

This table shows that the average cost of building a kilometre of road under Section 88 is much greater than under the SBEP. While there is a broad range of costs for road construction throughout the Province, the generally higher costs for Section 88 roads reflect a higher standard of road with greater permanency and usually in more difficult terrain. Section 88 roads provide access to larger areas and more timber. Expressed in terms of the amount of timber developed, the average costs are about 65¢ and 75¢ per m^3 for Section 88 and SBEP, respectively.

Stumpage revenue from the timber developed would average about $2.75/$m^3$, based on 1984 estimates.

In summary, road and bridge construction under the Harvesting Program will be expanded to ensure access to timber for future harvests and to distribute operations.

BARK BEETLES

Widespread damage to the timber resource in the interior of the Province is being caused by two native bark beetles: the mountain pine beetle and the spruce beetle. Chapter C1 of the Resource Analysis shows that bark beetles are the largest source of volume losses from pests in B.C.'s forests.

These beetles chew through the outer bark of trees and then cut tunnels in the inner bark region of the main stem. Eggs are laid in the tunnels and, after hatching, the young beetles feed and then emerge from the infested trees to attack new trees. The feeding activity girdles the trees, causing mortality. The mountain pine beetle carries with it a blue stain fungus which accelerates tree mortality, at the same time staining the wood and degrading the quality of lumber that may be produced.

The mountain pine beetle infestation occurs throughout the interior. The area of forest infested with mountain pine beetle has grown rapidly in the last few years, as the estimates in Table 2-D indicate.

Table 2-D: Mountain Pine Beetle Infestation

	1970	1975	1981	1983
	- - - - - - - (hectares) - - - - - - -			
Area Infested:	minor	32 000	158 000	460 000

Currently, spruce beetle infestations are estimated to cover about 80 000 ha, with concentrations in the Prince George and Nelson Forest Regions.

Both beetles prefer larger, mature trees and some of the present infestations are located in high-volume, high-value areas of forest. Outbreaks of mountain pine beetle have occurred in the past and lasted 8 or 9 years, but infestations of the present intensity have never been recorded. Natural controls and very cold winters can reduce populations significantly, but neither have had any effect to date. Research on the beetles is being done at the federal government's Pacific Forest Research Centre to improve the present understanding of these important pests.

Forecasts of the future course of the infestations cannot be made with a great degree of certainty. At best, population levels of the beetles could collapse due to weather or some unknown factor. At worst, populations could expand exponentially, killing massive areas of the Province's most valuable interior forests.

Given the circumstances, the most prudent action is to expand the Ministry's detection and control capabilities, encourage research efforts, and direct road and bridge construction, where practical, to ensure the infestations are harvested on a priority basis. Harvesting the timber infested will slow the spread of the beetles and salvage timber which would otherwise dry, increase fire hazards and eventually rot.

The Ministry recently brought this serious problem to the attention of the government and proposed a multi-year detection, control and road development program.

As a result, an authorization for $5 million for 1984-85 was granted. In conjunction with the road and bridge construction proposed in the previous section, this on-going pest management control program will do much to bring the infestations under control.

CANADA-B.C. FOREST RESOURCE DEVELOPMENT AGREEMENT

Since the IFMSA (Intensive Forest Management Subsidiary Agreement) was signed in May, 1979, the Ministry of Forests has carried on discussions with the federal government with the expectation of increasing forest management in British Columbia. IFMSA, originally set to terminate in 1984, was extended for one additional year and now expires on March 31, 1985.

Canada and B.C. will soon sign the Forest Resource Development Agreement. The objective of the proposed Agreement is to manage the forest resource of the Province, in order to sustain and increase the forest resource and strengthen the employment potential of the forest industry.

Specific objectives are to:

(i). manage part of the backlog of non-satisfactorily restocked lands in the Province,
(ii). intensively manage selected forest stands,
(iii). support forestry research by government and non-government organizations, and
(iv). assist the forest industry through studies related to utilization, marketing and product development, technology transfer and training.

Table 2-E outlines the programs of the proposed Agreement and the distribution of the costs between the two governments.

Table 2-E: Proposed Forest Resource Development Agreement

Program	Provincial Share	Federal Share	Total
	- - - -(millions of dollars) - - -		
Backlog Reforestation:	104.0	95.5	199.5
Intensive Management:	39.0	47.0	86.0
Implementation, Communication, Evaluation:	7.0	7.5	14.5
TOTAL	150.0	150.0	300.0

Over a five year term, the proposed Agreement involves a total expenditure of $300 million, shared equally. About 66% of that total will be allocated to backlog reforestation and associated activities. Approximately 29% will be allocated to intensive forest management, including activities such as fertilization, spacing, pest management and research. The remaining 5% is for contracts to implement the work, and for monitoring and evaluation.

The proposed Agreement will be phased in with expenditures of $22 million in the first year, $44 million in the second year, and $78 million in each of the following three years. This buildup is necessary given the lead times required to grow seedlings in nurseries and effectively plan treatments.

FINANCING FOREST MANAGEMENT: SECTION 88

Section 88 of the Forest Act is the principal means of financing forest management activities undertaken by licence holders. Section 88 allows the Ministry to reimburse licensees for approved activities (such as planting) by deducting the cost of the activities from the stumpage the licensee would otherwise pay to the government.

Expenditures through Section 88 during the past few years are shown in Table 2-F. In total, expenditures have fallen from about $81 million to about $63 million, with expenditures in the Harvesting Program (roads and bridges, primarily) falling about $35 million and Silviculture Program expenditures increasing approximately $17 million.

Table 2-F: Section 88 Expenditures

Program	1980-81	1981-82	1982-83	1983-84
	(millions of dollars)			
Silviculture	27.6	32.7	41.7	44.7
Harvesting	51.0	30.2	15.3	16.2
Other	2.3	2.1	1.8	1.7
TOTAL	80.9	65.0	58.8	62.6

As a means of reimbursing licensees for approved activities, Section 88 works fine so long as stumpage revenues meet or exceed expenditures. This has not been the case recently, particularily for licensees in the interior of the Province, who had to undertake major projects.

At February 28, 1985, unapplied Section 88 credits amounted to $37.5 million. These unapplied credits result primarily from insufficient stumpage revenue to offset road construction and basic silviculture work in the interior of the Province.

At the present time, most stumpage-bearing timber sold in the interior of B.C. is sold at minimum rates. Lumber prices would have to increase significantly for this situation to change and, with the current abundant supply of lumber in North American markets, this seems unlikely. While the Ministry is in the process of consolidating and simplifying the method of determining stumpage prices, this is not expected to significantly affect the level of stumpage revenue.

In view of the level of unapplied credits, the need to develop more timber through road construction and the continued expansion of planting, the Ministry presented a number of options for the government's consideration. Options included measures to increase revenues and reduce the costs to the government of some activities.

Section 88 remains a key issue in forest management.

KNAPWEED

Knapweed is a serious threat to the productivity of the Province's rangelands.

This plant, which was introduced into North America at the turn of the century, is unpalatable to livestock. Knapweed is quite hardy and, once established, it replaces the forage species normally utilized by livestock. The productivity of rangeland is thus impaired.

The estimated area of rangeland infested by knapweed has tripled in the last decade, to some 80 000 ha. The infestation is growing at more rapid rates recently than in the past.

In the short-term, the most practical method of controlling knapweed is through the use of selected herbicides, applied on a site specific basis. Biological controls, such as parasites and organisms which feed or weaken knapweed, have been tried and do show promise. However, more research and study is required before biological controls can be considered for general use.

Knapweed is discussed more fully in Chapter C2 of the 1984 Resource Analysis.

PART 3: FOREST AND RANGE RESOURCE PROGRAM

This Part presents a five-year forest and range resource program for implementation by the Ministry.

Funding for the Resource Program is from the following sources:

(i). annual appropriations (budgets) allocated to the Ministry by the Legislative Assembly,
(ii). credits to stumpage payable by licensees in accordance with the provisions of Section 88 of the Forest Act, and
(iii). Small Business Enterprise Account of the Consolidated Revenue Fund.

Unless noted explicitly, all expenditures forecast in this Part include funding from all of these sources. All expenditures forecast are in 1985 dollars: no allowances have been made for inflation. Adjustments for inflation, if required, will be made annually and reflected in successive reports.

In addition, the costs of buildings and accommodations paid to the B.C. Buildings Corporation have been distributed among the Ministry's programs to better reflect the full cost of each program.

MINISTRY OF FORESTS' PROGRAMS

Management Program

The Management Program provides executive direction and control for the whole Ministry. There are no major changes to the Management Program.

The Program spans all three levels of the Ministry. At headquarters in Victoria, it includes the activities and expenditure of the Executive of the Ministry, Information Services Branch and Strategic Studies Branch. At each of the Forest Region offices, the Program includes the regional manager and regional staff managers. At each of the Forest District offices, it includes the district managers and operations superintendents.

Expenditures in this Program are primarily for wages & salaries, and materials, expenses & supplies. Wages & salaries account for about 85% of all expenditures. Materials, expenses & supplies account for the remaining 15%.

As shown in Table 3-D, forecast expenditure for the Management Program is $13.3 million in 1985-86 and future years.

Finance & Administration Program

The Finance & Administration Program provides most of the basic infrastructure for the Ministry, including financial, administrative, personnel services, computer systems and mechanical services. No major changes are planned.

At headquarters in Victoria, the Program includes the activities and expenditures of Financial Services, Personnel Services, Systems Services, and Technical and Administrative Services Branches. At each of the Forest Region offices, it includes administrative, personnel, training, and technical support officers. At the Forest District level, the Program includes clerical, drafting and service technicians.

The major expenditures are for wages & salaries, which make up about 65 percent of the total.

Forecast expenditure for 1985-86 and future years is $35.6 million, a reduction of $5.5 million from 1984-85.

Harvesting Program

The objective of the Harvesting Program is to make timber available to the forest industry in a manner which reflects provincial forest resource objectives and ensures that the financial interests of the Crown are realized.

At Victoria, the Harvesting Program includes the activities and expenditure of Inventory and Planning, Timber Management, Valuation, and Engineering Branches. At each of the Forest Region offices, it includes inventory, planning, timber, valuation and engineering personnel. At the Forest District level, the Program includes inventory, timber, scaling, engineering and resource officers.

The overall goal for the Harvesting Program is to maintain an average provincial timber harvest of 75 million m^3 per year.

Forecast expenditure for 1985-86 is $94.0 million, an increase of $15.8 million over 1984-85. This increase is for road and bridge construction, as discussed in Part 2 of this Report.

Small Business Enterprise Program

The goal for the SBEP is to sell 4.9 million m^3 per year, which is the full AAC (Allowable Annual Cut) for the SBEP.

Sales under the SBEP are significantly different from other sales of timber. Sales are made on a competitive basis, with the sale being awarded to the qualified person or firm which offers to pay the largest bonus, in addition to normal stumpage. Roads and reforestation are the responsibility of the Ministry.

Significant changes will be made in the way in which the costs of roads and reforestation are financed, as provided in the Forest Amendment Act. A Small Business Enterprise Account will be established, within the Consolidated Revenue Fund, from which the Ministry will draw the money required to construct roads for future sales and to reforest past sales. The bonus paid by the person or firm awarded a SBEP sale will flow into the special fund.

In effect, the SBEP will be placed on a self-financing basis.

Silviculture Program

The objectives of the Silviculture Program are to restock denuded forest land and to improve the value and productivity of the forest resource.

At headquarters in Victoria, the Program includes the activities and expenditure of Silviculture Branch. At each Forest Region, it includes the silviculture officers and, at the Forest District level, includes silviculture resource officers. Nurseries and seed orchards located throughout the Province are included also.

The major expenditures under this Program are for approved silvicultural treatments or activities undertaken by licensees (financed through Section 88) and by contractors (financed through budgetary allocations). At present these items account for about 65% of all expenditures in the Silviculture Program.

Forecast expenditure for 1985-86 is $101.6 million (including $4.5 million from the Small Business Enterprise Account). In addition, expenditures will be made on silviculture under the Forest Resource Development Agreement.

The Silviculture Program has four components: basic silviculture, intensive silviculture, nursery operations and seed operations. These components are addressed separately in the following four sub-sections.

Basic Silviculture

The basic silviculture component of the Silviculture Program includes treatments and activities to restock the on-going, current denudation. Treatments and activities include planting, site preparation, brushing & weeding, and surveys.

On average, about 200 000 ha of mature and immature timber are harvested or destroyed by wildfire each year. Significant fluctuations in the area denuded occur from year-to-year, due to the markets for forest products (and hence harvest rates) and the severity of the fire season.

At present, about 45% of the area denuded is planted. The remaining 55% is left for natural restocking. The expansion of planting will continue, so that more than 60% of the denudation will be planted and less than 40% left for natural restocking. The specific goals for basic silviculture for Crown forest land are given in Table 3-A, below.

Table 3-A: Basic Silviculture Goals

	1985-86	1986-87	1987-88	1988-89	1989-90
	(hectares)				
Surveys	360 000	360 000	360 000	360 000	360 000
Planting	91 000	105 000	124 000	124 000	124 000
Site Preparation	110 000	125 000	130 000	130 000	130 000
Brushing & Weeding	14 000	20 000	25 000	30 000	35 000

For comparative purposes, the goals for 1984-85 are 86 400 ha of planting, 88 100 ha of site preparation, and 13 900 ha of brushing & weeding.

Brushing and weeding will be given a higher priority in future years. Not all plantations are successful, nor do all areas left to restock naturally do so. Competition from brush is a major cause of such failures and, through brushing & weeding, failures can be minimized.

Intensive Silviculture

The intensive silviculture component of the Silviculture Program includes treatments and activities to restock backlog forest land, and to improve the value and growth of immature forests. Treatments include backlog planting, site rehabilitation, spacing, fertilization and conifer release.

Intensive silviculture activities will be expanded significantly as a result of the Canada-B.C. Forest Resource Development Agreement. Goals for intensive silviculture, including the Agreement, are given in Table 3-B.

Table 3-B: Intensive Silviculture Goals

	1985-86	1986-87	1987-88	1988-89	1989-90
	(hectares)				
Surveys	100 000	250 000	250 000	250 000	250 000
Backlog Planting	16 500	20 000	37 800	37 800	37 800
Site Rehabilitation	20 000	37 800	37 800	37 800	37 800
Brushing & Weeding	0	2 000	7 000	8 000	8 000
Spacing	0	5 000	16 000	20 000	20 000
Fertilization	0	9 000	22 000	24 000	24 000
Conifer Release	0	1 000	2 000	3 500	3 500

Some modifications to these goals could occur as a result of the deliberations of the Management Committee, which will be established under the terms of the Agreement.

Nursery Operations

The nursery operations component of the Silviculture Program includes activities to produce all the seedlings required for basic silviculture and backlog planting.

Seedling production to meet the goals for basic and intensive silviculture will increase from about 134 million in 1985-86, to approximately 200 million seedlings in 1989-90. In total, about 890 million seedlings will be produced over the five-year period.

Included in the Program are funds to increase cold storage facilities and to complete the container conversion program in nurseries, as outlined in the Forest Resource Development Agreement.

Seed Operations

The seed operations component provides seed for all nurseries. Seed is collected both from seed orchards and natural stands.

The Ministry and the private sector will continue to expand seed orchard facilities to meet the goal of producing sufficient genetically improved seed for 40 million and 80 million seedlings for coastal and interior planting, respectively, by 1995.

New seed orchards will be developed. Also, a new seed centre is planned as part of the Forest Resource Development Agreement.

Research Program

The Research Program performs a service function to forest and range resource management programs by providing improved knowledge and methods for achieving objectives, based on scientific investigation.

The Research Program is directed primarily at the biophysical aspects of forest and range management on Crown forest land. It encompasses applied research, technical consulting services, research extension and collaboration on operational testing of applied research results, including the administration of research projects approved under Section 88. This is achieved through the Research Branch in Victoria and research officers at the Forest Region offices.

Forecast expenditure is $9.4 million in 1985-86. In addition, under the Forest Resource Development Agreement, research activities will be expanded and facilities upgraded.

Forest Protection Program

The objective of the Forest Protection Program is to protect the forest and range resources of the Province from damage by wildfire and pests, such as insects, diseases and noxious weeds.

The Forest Protection Program provides fire and pest management services directed toward the reduction of timber losses and the maintenance of public and environmental values. The Program includes the activities and expenditures at Protection Branch in Victoria, protection officers at the Forest Region level, and protection resource officers at the Forest District offices.

Expenditure under Section 88 provides for the implementation by licensees of approved fire protection and pest control projects on Crown forest land under licence.

Apart from changes to address the bark beetle infestations, there are no significant changes in the Forest Protection Program. The major goals are to keep the area burned by wildfire below 69 000 ha and the timber volume loss below 2.6 million m^3 each year.

Expenditure is forecast at $24.9 million in 1985-86, including funds to implement the bark beetle program discussed in Part 2. In addition, pest management will be addressed through the Forest Resource Development Agreement.

Fire Suppression Program

The Fire Suppression Program provides fire-fighting services directed toward the control of wildfires. The Program is linked closely to, and supported by, the Forest Protection Program, but is managed and funded separately.

The budget for each year is $46.5 million. This reflects the policy of including sufficient contingency funding into the budget to match the expected expenditure in a "bad" fire year.

Range Management Program

The objective of the Range Management Program is to supply forage for domestic animals, while conserving the resource base so that future forage production will continue in a manner consistent with integrated use objectives for Crown land.

A major challenge in range management is to contain the spread of knapweed in the Province. Knapweed control is addressed in this program, through both chemical and biological methods.

The major goal for Range Management is to continue to provide 934 000 Animal Unit Months (AUMs) of forage to the ranching industry each year.

The Program includes the activities and expenditures at Range Management Branch in Victoria, range officers in Forest Region offices, and range resource officers at the Forest District level.

Forecast expenditure is $5.0 million in 1985-86, an increase of $0.15 million from 1984-85.

Recreation Management Program

The objectives of the Recreation Management Program, within the Ministry's integrated resource use framework, are to maintain and enhance recreational values and to provide a system of sites and trails to facilitate public recreational use of Crown forest land.

The Recreation Program has two main thrusts:

(i). resource protection and management, and
(ii). operations.

The operations side is concerned with people management, and with developments to facilitate recreationists' use and enjoyment of forest lands. It stresses low key, rustic development with minimum essential terrain modification, and emphasizes public health and safety needs, through site servicing and maintenance. Much of the latter is accomplished through contracts to local individuals.

The resource protection and management side of the program is longer term, less visible, but more important to the Ministry's mandate than is the operations side. It deals with the recreation components within the integrated use management and planning of the forest resource, resource inventory, landscape management, inter- and intra-ministry liaison, and is a major Ministry interface with the public.

No major developments are planned under this Program. Existing facilities will be consolidated and, wherever possible, volunteers will be used. Emphasis will be placed on the protection of recreation values.

The Program includes activities and expenditures at the Recreation Management Branch in Victoria, recreation officers in the Forest Region offices, and recreation resource officers at the Forest District level.

Forecast expenditure is $4.0 million in 1985-86.

RESPECTIVE ROLES OF THE GOVERNMENT AND PRIVATE SECTOR

The Ministry, in concert with the private sector, implements programs approved by the government. The Ministry also measures performance.

On Crown forest land, the private sector carries out activities and treatments under contract to the Ministry.

The Ministry's policy is to utilize the private sector wherever possible. The role of the private sector in implementing the Program will continue to increase.

SUMMARY

In summary, the major changes are:

(i). increased road and bridge construction under the Harvesting Program,
(ii). continued expansion of planting under basic silviculture so that over 60% of the forest land denuded will be restocked by planting,
(iii). significant expansion of intensive silviculture, as a result of the Canada-B.C. Forest Resource Development Agreement,
(iv). implementation of measures to control infestations of mountain pine and spruce bark beetles, and
(v). more effort toward controlling the spread of knapweed on rangeland.

Table 3-C shows the increases in planting since the first Resource Program was introduced in 1980, along with the increases to be implemented over the next five years. In total, over the 10 year period shown in Table 3-C, about 1.4 billion seedlings will be planted on Crown forest land.

Table 3-C: Planting on Crown Forest Land

	Basic	Backlog	Total
	- - -(millions of seedlings)- - -		
Actual:			
1980-81	-	-	74
1981-82	67	11	78
1982-83	86	12	98
1983-84	96	12	108
Forecast:			
1984-85	108	20	128
1985-86	114	20	134
1986-87	131	24	155
1987-88	155	45	200
1988-89	155	45	200
1989-90	155	45	200
TOTAL			1,375

All of these changes will heavily involve the private sector. Road and bridge building and planting are accomplished either through licensees or through competitive contracts issued directly by the Ministry to private firms.

Forecast expenditure for the Program is presented in Table 3-D.

Table 3-D: FOREST AND RANGE RESOURCE PROGRAM

	Budget[1] 1984-85	FORECAST EXPENDITURE 1985-86	1986-87	1987-88	1988-89	1989-90
	(thousands of 1985 dollars)					
Minister	156	160	160	160	160	160
Management	13,144	13,320	13,320	13,320	13,320	13,320
Finance/Admin.	41,080	35,620	35,620	35,620	35,620	35,620
Harvesting	78,200	93,970	93,970	93,970	93,970	93,970
Silviculture	111,459	101,570	116,640	124,910	126,600	128,400
Research	9,604	9,370	9,370	9,370	9,370	9,370
Forest Protection	24,744	24,920	27,920	27,920	27,920	27,920
Fire Suppression	46,000	46,500	46,500	46,500	46,500	46,500
Range	4,854	5,000	5,000	5,000	5,000	5,000
Recreation	4,340	4,000	4,000	4,000	4,000	4,000
Sub-Total	333,581	334,430	352,500	360,770	362,460	364,260
IFMSA[2]	11,000	-	-	-	-	-
FRDA[3]	-	22,000	44,000	78,000	78,000	78,000
TOTAL	344,581	356,430	396,500	438,770	440,460	442,260

Notes: 1 Includes authorizations made during 1984-85 for the Small Business Enterprise Program ($6.5 million), the Emergency Bark Beetle Program ($5.0 million), Silviculture ($15.1 million), and Protection ($1.0 million).

2 Canada-B.C. Intensive Forest Management Subsidiary Agreement, which expires March 31, 1985.

3 Canada-B.C. Forest Resource Development Agreement. Includes expenditures to be made directly by the federal government pursuant to the Agreement.